STATE OF MAINE
PUBLIC UTILITIES COMMISSION
18 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0018

EX PARTE OR LATE FILED

DOCKET FILE COPY ORIGINAL

THOMAS L. WELCH
CHAIRMAN

WILLIAM M. NUGENT
HEATHER F. HUNT
COMMISSIONERS

September 24, 1996

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Re: *EX PARTE* MEETING, CC DOCKET 96-45, FEDERAL-STATE JOINT BOARD ON UNIVERSAL SERVICE

On September 12 and September 16 and 17, Joel Shifman of the Maine Public Utilities Commission in Augusta, Maine had meetings with some of the Staff of the 96-454 Federal-State Joint Board. In those meetings, we discussed some of the problems Mr. Shifman and Mr. Choura found with the existing proxy models currently under consideration. Mr. Shifman explained some of the conclusions in the paper he and Mr. Choura recently presented at the Biannual Regulatory Information Conference of the National Regulatory Research Institute. A copy of that paper is enclosed for your reference.

If you have any questions or require additional information, please feel free to call me.

Sincerely,

Joel Shifman

JS/nlp
Enclosure

No. of Copies rec'd 0+4
List A B C D E

NARUC

Universal Service

Existing Proxy Models

What can they be used for?

Submitted to:

BRIC

September 1996

By
Joel Shifman
Maine Public Utility Commission
State House Station 18
Augusta Maine, 04333
207-287-1381
Joel.Shifman@state.me.us

Ron Choura
5884 Beuna Parkway
Haslett MI, 48840
517-334-6240
Choura@tc.msu.edu

TABLE OF CONTENTS

CHAPTER 1

UNIVERSAL SERVICE THE EARLY HISTORY

Background to Universal Service Prior To 1996 Communications Act

The topic of universal service continues to be subject to numerous papers, seminars, industry meetings, regulatory and legislative activities, including numerous Federal State Joint Board and Federal Communications Commission (FCC) proceedings. In 1981, the FCC was proposed to implement a flat rate interstate charge on local customers which would have raised local rates a minimum of $8 per month. In response to this proposal the state of Michigan filed a petition with the FCC stating that it believed Universal Service would be at risk if the FCC were to shift all the loop cost from interstate carriers to the local customers. National Association of Regulatory Utility Commissioners (NARUC) supported the petition, however Illinois Commerce Commission did not support the position that interexchange carriers should pay some portion of the cost for the local loop.

To address the issue of universal service the Joint Board in FCC Docket 80-286 established a transition mechanism and the existing central office equipment dial equipment

minutes of use (DEM) weighting, high cost fund, lifeline programs and the Link up Program to mitigate the various shifts in revenue from the interstate jurisdiction to the state jurisdiction. The Joint Board/FCC orders adopted in 1983 (Subscriber Line Charge (SLC) Order in CC Docket 80-286 & 78-72) and 1987 (Uniform System of Accounts (USOA) Part 32 Conformance Order and SLC increase) which shifted more that $8 billion dollars to the states or the local rate payers. That shift in jurisdictional revenue requirement caused the intrastate local or toll rates to increase and interstate long distance rates to go down. The changes were phased in over a period which ended in 1992.

- At the completion of the phase in of the separations changes and shift of revenue requirements to the states, NARUC passed a resolution (July 25, 1990) stating that there was a need for comprehensive review of the jurisdictional cost allocation (separation process) process including the universal service mechanisms (high cost fund, dial equipment minutes of use weighting and circuit equipment allocators). In the mean time the Joint Board identified the universal service fund as one of the issues that should be looked at. NARUC also established a work group in July, 1993 to study universal service and issued a report in July 1994.

The Universal Service Fund (USF) program was identified as a "short term" issue at the March 2, 1992 Joint Board meeting on Comprehensive Review. Questions have been raised about USF growth and targeting which could lead to an evaluation of how the fund is working. In response to this situation, the USF Industry Task Force developed and distributed a USF Discussion Paper on May 6, 1992.

The USF Industry Task Force was chaired by NECA and is made up of representatives from small and large exchange carriers, consultants, and other national associations including

NTCA, OPASTCO, and USTA. Statistics presented in the paper indicate that the current USF mechanism, which conforms to FCC rules, is experiencing expected growth in fund size and is properly targeted.

The FCC released a Staff Paper in August, 1993 that called for the continued preservation of universal service. The Federal/State Joint Board and the FCC addressed the current size of the Universal Service Fund (USF) by establishing a indexed cap on the Universal Service Fund in 1993.

As a result of the interim cap, NECA filed revised rates on January 14, 1994, to be effective February 1, 1994 - June 30, 1994. The Universal Service Fund size using the indexed cap resulted in payments of $725.3M for 1994 versus an amount of $744M submitted to the FCC in October 1994.

On May 17, 1994 NECA submitted to the FCC its report of presubscribed lines for IXCs qualified as USF payers. These data were filed in conjunction with NECA's USF/LA Filing to revise Lifeline Assistance and Universal Service Fund charges billed to IXCs. This filing sets those charges at $.0901 and $.4295 per line, respectively, effective July 1, 1994 through December 31, 1994. This represents a net decrease per subscriber line per month of $.0053 from the combined rates then in effect.

On September 30, 1994, NECA submitted results of its 1994 USF Data Collection to the FCC. This report contained results of exchange carrier loop costs for the period ending December 31, 1993 and established high cost company expense adjustment levels for calendar year 1995. With the interim cap on growth for the high cost fund still in effect for 1995, the total fund size was increased to $749.2 million (1994 fund size increased by 3.28 percent to reflect

growth in lines). Absent the cap, funding would have been $777.4 million, an increase of 4.8 percent over the prior year's uncapped level.

Numerous other interested entities including MCI, MFS, Teleport, AT&T, SWBT, USTA, NARUC have published papers regarding universal service issues. Internet on line discussions of this issue are also going on at the Benton Foundation and the University of Pittsburgh. In October 1994 the Telephone Industry Analysis Project (TIAP) reported out the paper Beyond Cost Allocations: Benchmark Subsidy Method. The purported purpose of this Project was to provide information to support the development of alternative telecommunications policies to meet the needs of stakeholders in an environment that includes competitive and non-competitive markets, federal and state regulatory jurisdictions, and to produce research and analysis which will assist policy makers in making informed decisions. The TIAP is affiliated with the Public Research Center, College of Business Administration, University of Florida. Prior to 1993, the project was known as the Alternative Costing Methods Project. Private industry provided funding has continue to support the project from year to year.

On November 17, 1994, NECA submitted revised USF ($0.4335 per presubscribed line per month) and Lifeline Assistance ($0.0848 per presubscribed line per month) rates to the Commission to be in effect for the period January 1, 1995 through June 30, 1995. These changes, permitted to become effective January 1, reduced the combined charge to the qualified interexchange carriers by $0.0013 per presubscribed line per month.

NECA submitted its semiannual revision to USF and Lifeline Assistance charges on May 17, 1995, to be effective for the period July 1, 1995 through December 31, 1995. The proposed changes in rates of $0.4214 for USF and $0.0936 for Lifeline Assistance would further

reduce the composite charge to the interexchange carriers by $0.0033 per subscriber line per month.

On August 30, 1994 the FCC issued a Notice of Inquiry (NOI) regarding High Cost Assistance. Comments were submitted on October 28, 1994 and reply comments on December 2, 1994.

Approximately 150 parties filed in this docket, with a wide variety of viewpoints represented. There was general agreement that:

1) A comprehensive review of all universal service issues, including implicit support, is needed;

2) The definition of universal service should not be expanded; and,

3) All providers should contribute to universal service support.

However, there were areas of disagreement. For example:

While small local exchange carriers (LECs) believe the current USF works well and requires no fundamental change, interexchange carriers (IXCs) felt that the USF was too large, and

Some parties felt that Price Cap/Tier 1 LECs should be ineligible for high cost support, while others believe that all providers should be eligible.

In the August 30, 1994, NOI of the FCC also sought comment on the effectiveness and efficiency of the USF and DEM mechanisms, and the manner in which Part 36 rules are used to provide interstate assistance to LECs. Comments were due October 28, 1994 and replies on December 2, 1994.

More than, 144 parties filed comments in this proceeding. Generally, the regional bell operating companies (RBOCs) argued that the proceeding was too limited and needs to address the much larger issues of maintaining universal service in a competitive environment. They

therefore recommended that the FCC initiate a comprehensive proceeding to investigate all funding mechanisms. The IXCs argued that the growth in high-cost assistance is excessive, and should be controlled through more targeted approaches. They and competitive access providers (CAPs) supported the concept of a voucher system. Many small LECs and state regulators presented "successes" of the USF, noting that policy is working. They also maintained that support should be determined on the basis of actual costs.

On December 1, 1994, the FCC issued a mandatory Universal Service Fund data request in Docket 80-286 to all telephone companies that provide telephone exchange service. The purpose of the data request is stated to be to "enable the Commission, State regulatory agencies, LECs, IXCs, and other interested parties to estimate the financial effects on various assistance mechanisms". Depending on certain qualifications, the completed Files 1 through 4 of the data request are due to the FCC on February 1, 1995 and/or March 1, 1995.

On July 13, 1995, the FCC released a Notice of Proposed Rulemaking (NPRM) and NOI proposing revisions to the FCC Part 36 jurisdictional separations rules regarding high cost assistance mechanisms. Specifically, the FCC requested comment on several alternatives for revising DEM weighting and USF rules, including such ideas as modification of current rules and thresholds, combining the current programs, instituting a proxy factor system, and issuance of high cost credits. The primary focus of the alternatives was to reduce the amount of high cost support provided via DEM weighting and USF mechanisms. Restructuring Universal Service support to address the larger issue of the amount of the current implicit support flows embedded in LEC rates, which are subject to erosion by competitive forces, was not addressed in that docket.

Approximately 175 parties filed comments, which were due October 12, 1995, in this proceeding. Reply comments are due on November 12, 1995.

Approximately 50 parties filed reply comments on November 10, 1995. Subsequent to that, several parties have filed ex partes containing data analyses in support of their positions on the NPRM issues regarding the USF, DEM weighting, proxies, benchmarks, etc.. It was during the context of these ex parte presentations that the joint sponsors of the first bench mark pricing model filed that model with the FCC and Joint Board.

On December 8, 1995, the Docket 80-286 Joint Board issued a Recommended Decision to extend the interim cap on USF an additional 6 months until July 1, 1996 which was accepted by the FCC on December 12, 1995.

Many parties agreed that a reworking of the current Part 36 support mechanisms, upon which the July 1995 NOI was based, is a commendable undertaking. However, most LECs, competitive access providers, and IXCs called for a more comprehensive review of universal service issues. Some other more predominant comments made were:

States commented that they want to play a major role in administering the support funds (other parties were less enthusiastic about State distribution of the funds). Some States disagreed, however, on the use and appropriateness of proxies and high cost credits.

IXCs, competitive access providers, and cable TV providers generally argued for the elimination of DEM weighting and large cuts in USF support. LECs generally argued the opposite.

LECs were split on the use of proxies.

On February 8, 1996 the President signed into law the Communications Act of 1996. This act changed the course of universal service activities. The FCC on March 8, 1996 released and NPRM on universal service and established a new Joint Board in Docket 96-45 to review the

universal service issues under the new act.

Most of the papers and party positions regarding universal service, including those included in the works cited here in, have been posted on the Energy and Regulatory Matters Information Service (ERMIS) Bulletin Board (517-882-0021 or telnet ermis.state.mi.us) managed by the staff at the Michigan Public Service Commission.

CHAPTER 2

UNIVERSAL SERVICE CURRENT EVENTS

The Events Post 1996 Federal Communications Act

On February 8, 1996 the President signed into law the Communications Act of 1996. This act changed the course of universal service activities.

Section 254(a)(1) of the Communications Act, as amended, requires the Commission to "institute and refer to a Federal-State Joint Board under section 410 (c) a proceeding to recommend changes to any of its regulations in order to implement sections 214(e) and [Section 254], including the definition of the services that are supported by Federal universal service support mechanisms and a specific timetable for completion of such recommendations."

The FCC on March 8, 1996 released and NPRM on universal service and established a new Joint Board in Docket 96-45 to review the universal service issues under the new act.

The Joint Board in CC Docket 80-286 and now in 96-45 have compiled a extensive record of parties concerns on how universal service should be funded. Various options have been put forward for determining what should be funded. Some of those options are: actual cost (% of cost over a specified amount), vouchers customers, models (Bench Mark Cost Model 1

(BCM1), Bench Mark Cost Model 2 (BCM2), Hatfield Model (Hatfield) and Cost Proxy Model (CPM)), and customer discounts (lifeline 1, lifeline 2 and linkup).

The March 8, 1996 NPRM states the FCC's initiative to 1) define the services that will be supported by Federal universal service support mechanisms, 2) define those support mechanisms, 3) otherwise recommend changes to current regulations to implement the universal service directives in the 1996 Act.

The NPRM set forth seven principles enunciated in Section 254(b) of the 1996 Act for establishing a mechanisms for collecting and distributing funding essential to achieve the universal service goals. The goals identified were:

1. the concept of "quality services" utility of performance-based measurements to evaluate our success in reaching that Congressional objective to ensure that quality service be available at "just, reasonable, and affordable rates";

2. foster access to advanced telecommunications and information services for "all regions of the Nation;

3. consumers in "rural, insular, and high-cost areas" and "low-income consumers" should have access to "telecommunications and information services" that are "reasonably comparable to those services provided in urban areas." In light of the further legislative intent to "accelerate rapidly private sector deployment of advanced services to all Americans;

4. support mechanisms for universal service and should guide efforts to establish those mechanisms through which funding essential to realizing the universal service goals will be collected and distributed. This calls for "equitable and non-discriminatory contributions: from "all providers of telecommunications services";

5. "support mechanisms should " be "specific, predictable and sufficient";

6. "elementary and secondary schools and classrooms, health care providers, and libraries should have access to advanced telecommunications services; and

7. Section 254 of the new legislation authorizes the FCC and the Federal-State Joint Board to base universal service policies on "[s]uch other principles as [they] determine are

necessary and appropriate for the protection of the public interest, convenience, and necessity and are consistent with this Act."

The NPRM also asked which services should be supported, how to implement explicit support mechanisms, how to determine affordability, how to calculate the "subsidy", the use of cost proxy models, the appropriateness of DEM weighting rules, how to define service areas, and specific recommendations for low-income customer support - including toll limitation services, Lifeline and Link Up America programs. Comments were submitted on April 12, 1996 and reply comments May 7,1996. It was in response to this portion of the NPRM that proponents of the BCM and later the Hatfield Model proposed that these models be used as a substitute for book cost in order to determine eligibility and amount of support provided for universal service under section 254 of the 1996 Communications Act.

Approximately 250 parties provided Comments to the NPRM in the following areas: (1) goals and principles of universal support mechanisms, (2) support for rural, insular, and high-cost areas and low-income consumers, (3) support for schools, libraries, and health care providers, (4) enhancing access to advanced services for schools, libraries, and health care providers, (5) other universal service mechanisms, and (6) administration of support mechanisms. Although most of the parties agreed on the need for universal service support these was no clear cut solution to the universal service problem. Disagreement exists over scope of the fund, interstate only or both interstate and intrastate, and the method used to determine the size of the fund, with alternatives ranging from a fully distributed cost basis to some form of total service long-run incremental costs (TSLRIC). While most parties agree that universal service should be funded on a competitively neutral basis, alternatives for the funding basis include total revenues, total

retail revenues, interstate only revenues, and total revenues - net of payments to other carriers. Support of education and health care is generally supported by the parties, but vast differences exist in the scope of the funded services, from basic access up to inclusion of terminal equipment (computers, etc.) on a wide spread basis. Significant concerns are raised about the costs and who would fund these programs.[1] While many parties supported the idea of using proxy models to determine high cost support amounts, no parties except the sponsors of the various proxy models supported their use, because of the numerous deficiencies in the models.

Over 100 parties provided Reply Comments, with many reiterating points made in their Comments. A number of state commissions filed a Joint Reply which stated that the NPRM is very broad and lacks specificity and that a supplemental NPRM should be issued with specific proposals and definitive rules. The Joint Reply also stated the fund size should not be limited, but be adequately sized and that more time should be provided to allow development of the models presented. Also the distribution of universal service fund support should be based on a measure of costs rather than rates, since there is significant variation in rate design methods/policies among and even within states.

The Joint Board held an open meeting on June 5, 1996 to address how much support would be required for rural high cost areas, low income consumers, and how to pay for it. A panel discussion addressed Cost of Support; a second panel discussed Alternatives for Recovering Costs & Providing Universal Service Support. Also on June 5, 1996, the FCC announced the membership of its Telecommunications and Health Care Advisory Committee

---

[1]Briefing binder of Jurisdictional and Universal Service Issues for the Joint Boards and Staff, NARUC Summer Meetings, Los Angeles, July 1996

which will report to the Joint Board by September of 1996. Another open meeting was held on June 19, 1996 with panel discussions on Schools & Libraries and on Health Care.

On July 3, 1996 the Common Carrier Bureau, at the request of the staff of the Federal-State Joint Board, issued a Public Notice requesting cements on a list of 72 questions. These questions related 1) Definitions Issues, 2) Schools. Libraries, Health Care providers, 3) High Cost Fund, 4) Proxy Models, 5) Competitive Bidding, 6) Benchmark Cost Model (BCM), 8) Cost Proxy Model Proposed by Pacific Telesis, 9) SLC/CCLC, 10) Low-Income customers, and 11) Administration of Universal Service Support. Comments were due on August 2, 1996.

On July 10, 1996 the Common Carrier Bureau, at the request of the staff of the Federal-State Joint Board, issued a Public Notice requesting further comment on cost models. Comments were due on August 9, 1996. Summaries of the comments related to proxies are contained later in this paper.

The FCC Staff issued data request letters on August 2, 1996 to the sponsors of the different proxy models. The letter calls for replies by August 16, 1996 to be filed in the record and provided to the Joint Board. As of the writing of this paper the comments have not been filed.

CHAPTER 3

ANALYSIS OF PROXY MODELS

INTRODUCTION

The telecommunications industry has had for years engineering models. The models have been used to design the facilities needed for specific constructions projects. Proxies (models to project the anticipated cost for building a telecommunications network to provide service to a given geographic area) are theoretically possible, however the plans presented in the record to date are drastically simplified, intended for only universal service fund identification purposes and not designed for pricing, cost allocations and revenue requirement determination and even the best one of the models is seriously flawed. The regulatory staffs, working with the companies, have identified a set of multi-dimensional proxies that could theoretically work. These ideas account for the many changes form the benchmark cost model 1 (BCM1) to benchmark cost model 2(BCM2). Many parties dtill believe that proxies, while theoretically possible, will require considerable testing. That additional testing and analysis will not be done for some time.

The analysis and comments to follow will focus primarily on BCM2 which is copy

righted and some what difficult to manipulate because it has protected programing. The reason for this is that BCM1 has been withdrawn by its sponsors from consideration, the CPM model has not been provided publicly (the data and perhaps the model are confidential and proprietary) for comprehensive analysis and therefore only perfunctory review can be made. We have not devoted much discussion to the Hatfield model because a fairly preliminary analysis of the model indicates that its results (as shown in chart attached) deviate so greatly from actual costs that the model can't be taken seriously at this time without detrimental effects on the current providers of telephone services.

PROXIES

A number of parties including U.S. West, GTE, Pacific Tel, MCI, AT&T and others advocated the use of some kind of a proxy method, at least as a transitional approach, to determine the level of high cost funds that should be allocated to any given geographical area. GTE recommended that the proxy method should ultimately be replaced by a bidding mechanism. Numerous other parties recommended rejection of the use of proxies alleging that no system of proxies could accurately predict high cost.

The primary reasons proxy methods are desirable include the fact that they are less susceptible to manipulation than "book cost" based funds, the fact that they are more compatible with a competitive environment, because they can be used to better target customers in some study area units that are actually high cost and the fact that they are more related to the cost of providing service in the future because they are not tied to past (embedded) costs.

The first proxy method proposed by U.S. West was based primarily on density per

square mile and distance of the subscribers from the wire center as indicators of high cost. U.S. West used its proxy method to determine the cost for each census block. It then proposed to use those costs to determine eligibility for High Cost Funds on a census block by census block basis. U.S. West tested the accuracy of its proxy approach by comparing the cost developed using the proxy to the costs derived using a model developed by RAND. There were problems with both the substance of the U.S. West model and the manner by which it is tested by U.S. West. US West agreed that there were problems and major modifications were required and resulted in BCM1 model being developed.

The primary deficiency with the first U.S. West model was that several factors other than density and the distance customers are from the wire center, appear to contribute more to any given area having high cost. An examination of data provided by some companies using the U. S. West model for locations in the midwest shows that the first U. S. West model which was solely based on density and distance from wirecenter had little Correlation to high cost. An examination of study areas having similar book costs but different densities further demonstrates this fact. Initial examination by many parties revealed that other characteristics may be closely related to costs. One factor that appeared to have a great effect on cost is the topography of the area being served. Some other factors that were identified as being related to causing high cost include the size of serving wire center, road accessibility, climate, whether the area is served by an Rural Utility Services borrower, the area's distance from a fairly large population center, and vintage of facilities.

The U.S. West test for accuracy of its first proxy method was problematical because its proxy based costs were not compared to "real" or "embedded" costs but were compared to other

proxy derived costs. Because the RAND costs development model contained the same primarily dependant variable as the U.S. West proxy (density) it was not surprising that the proxy appeared to correlate with the "costs" that are developed using the Rand model. Many parties reviewing the first study advanced the position that In order to determine whether a proxy factor is usable it must be compared to book costs or other "real costs" developed using some primary dependant variable other than the one underling the proxy itself.

The GTE proposed a model that used proxies for sub-study area units as a transitional high cost fund allocation method. Its method proposed to "correct" for deficiencies in the proxy method by using a factor to "true up" the sum of the proxy derived cost for all the census blocks in a study area to the book costs for each study area. That frozen factor would then be used in the future to adjust the proxy derived costs for any sub-study area unit.

The deficiency with this method is the fact that the average ratio between the sum of the proxy derived census block costs and the book costs for the entire study area will not likely represent the ratio of any given individual census blocks to its book cost unless all the census blocks in the study area are homogeneous. The more homogeneous a study area is, the more truing up using the GTE method, will either overstate or understate the cost for any given census block.

General Comments on the Application of Models

The models estimate cost on a total service unseparated basis. The models are proposed by most parties for the purpose of determining what portion of universal service support fund should be supported through the Federal plan. The models assign all loop costs on a unseparated

basis to dialtone lines for the purpose of choosing an appropriate level of the Federal affordability benchmark. While this may be appropriate for the purpose of determining the need for Federal universal service funds, this same methodology should not be used for the purpose of setting either Federal or State rates for any services including local exchange service, even if the models were perfect. The models allocation of all loop costs to local exchange services may also be contrary to admonition in section 254(k) of the Act which does not permit the assignment of all joint costs to services receiving universal service cost support.

The proxy models do not capture unique characteristics such as: glaciers, permafrost and ice effects; the lack of road system; limitations placed on surface transportation and construction due to Arctic conditions; and high labor costs. If a proxy model is used, then select a model that is sound from engineering and economic perspectives. In this regard, both the BCM2 and CPM models are superior to the original BCM model or the Hatfield model. BCM2 model and the CPM model might be merged into a single model that may have results that more closely replicate actual engineering and as built costs.

The use of actual wire centers or sub wire centers areas reflecting actual serving topologies is preferable to CBGs. The proxy methodology should study a geographic area which matches the actual network design for which costs are incurred. Since the standard upon which the proxy models are being judged is their ability to replicate actual costs, simply use actual book costs may still be preferable and should always be used as a test by which to evaluate model reasonableness. Universal service support should be based on book costs until such time as a workable model can be developed.

Rural companies should be allowed to obtain universal service support based on actual

book costs instead of proxy costs for the time being, because errors in the existing models could endanger the continued existence of universal service in rural areas and could irreparably impact the public health and welfare of persons residing in those areas. Further more the Act requirement of comparable service at comparable rates could be seriously undermined if unproven proxies are employed for small companies in rural areas. Rural companies should transition off of book costs if and only if it can be demonstrated that the models reflect the cost of small companies and if there are streamlined waiver procedures to use alternative methods.

Until the various inputs to the models can be demonstrated to have a direct correlation to cost causality and its magnitude, proxy models are not appropriate for determining prices. All the models are replete with unproven assumptions and factors where the relation of those factors to cost have not been demonstrated.

There is a concern with the fact that all the models construct an optimal network which is unrealistic and impossible to create in the real world. For example all the models assume that all portions of the network will be built simultaneously and will not necessarily meet actual service demands. Further more all the models make no provision for less than optimal externalities which are experienced by all operating telephone companies. Failure to recognize these real externalities and network design constraints will seriously under estimate cost and possibly make it impossible for companies to be able render affordable reliable telephone service.

The various proxy cost models that have been submitted are generally quite complex, having variable inputs, tables, and calculations, and neither sufficient time nor sufficient information about the models has been provided to perform a detailed review of any of them.

The wide disparities in the models' cost outputs support parties position that universal service support calculations should be based on an eligible carrier's actual costs for the time being until better models can be developed. Further more if making a workable proxy turns out to be more complex than reviewing or designing facilities and pricing them out, then the effort to do this should be reconsidered.

Proxies should be judged on the following criteria:

(a) easy to administer and simple to implement

(b) reasonably reflect actual costs in order to ensure that support is "sufficient"

(c) appropriately relate costs and support levels

(d) reflect cost differences that actually exist geographically by LEC

(e) compliance with the substantive requirements of the 1996 Communications Act

Proxy cost models should satisfy the following criteria:

1. Model should be publicly available and easy to understand and operate.

2. Inputs and outputs should be reasonable.

3. The network designed by the model should be capable of evolving into a network which in th efuture can provide high quality voice, data and video service to the extent as required by the 1996 Act.

4. The model should accurately reflect the elements which it purports to reflect.

5. The model and its application to the targeting of high-cost support to specific geographic areas should assure the continued provision of affordable basic telephone service and encourage the efficient evolution of local competition.

Bench Mark Cost Model

The flaws in the BCM include:

(a) the assumption that all households are evenly distributed throughout the census block group in which they are contained was partially remedied by shrinking the census block group squared size but is still a problem because it still does not reflect the actual plant construction to meet demands for customers who's locations are usually somewhat clustered around certain serving areas ;

(b) uses census block groups which in many cases do not represent the way geographical areas are served. LEC networks are constructed and, hence costs incurred, on a wire center or serving area basis;

(c) many census block groups are assigned to the wrong wire center or to a wire center physically not capable of rendering service (ie. Across a high mountain or on the wrong side of a body of water).

(d) In the BCM, algebra is used to develop loop lengths and cable size, these inputs are not explained or verifiable at this time.

(e) BCM2 vastly underestimates the impact of loop length caused by slope. The magnitude of the slope multiplier is not large enough, it should large enough to convert the point to point distance calculated in the model to route miles of plant.

(f) The models proponents need to provide more documentation about their models, including data sources and specific algorithms for arriving at each of the user-defined input values.

(g) The switching costs used in BCM2 are not appropriate for rural areas where customers must be served by very small switches or remote. Recommend that per line switching costs be modeled for switches having less than 100 lines, 100 to 500 lines, 500 to 1000 lines,